

# Stress in a nursing profession and its influence on health behaviours

(Stres w pracy pielęgniarek a podejmowane zachowania zdrowotne)

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**Abstract** – Introduction. Stress is a common phenomenon in human life. It results from a variety of stressors and experiences. Stress may be accompanied by negative emotions such as anxiety, fear, anger or aggression. The exposure to stress, in turn, may lead to physiological and biochemical changes in human organism.

Aim of the study. The objective of the study was to assess the intensity of stress experienced by nursing staff working in intensive care units and to examine its influence on nurses' health behaviours.

Materials and methods. The study was carried out in a group of 100 nurses working in anaesthesiology and intensive care units of the University Hospital in Cracow. The following research tools were applied in the study: a self-designed questionnaire, Health-Related Behaviour Inventory and Perceived Stress Scale (PSS-10). A statistical analysis was carried out with the application of Stat Soft programme. The significance level in the analyses was assumed at the value of  $p < 0.05$ .

Results. The results of the study show that 86% of the examined nurses experience stress at work. Statistically significant correlations were observed between the intensity of perceived stress and general health behaviours ( $p = 0.002$ ;  $r = -0.30$ ). The higher stress nurses experience, the less attention they pay to health behaviours.

Conclusions. Nurses working in intensive care units are exposed to numerous stress-inducing factors (sudden or difficult intubation, reanimation). As a result of stress nurses do not follow proper health behaviour routines, which may be detrimental to their health. The respondents tend to follow proper health behaviour routines as far as proper eating habits and positive mental attitude are concerned. However, they care very little about proper preventive measures.

**Key words** - stress, stress-inducing factors, nurses, intensive care unit, health behaviours.

**Streszczenie** – Wstęp. Stres jest czynnikiem powszechnie spotykanym w życiu człowieka. Powstaje na skutek oddziaływania różnego rodzaju stresorów, zdarzeń. Stresowi mogą towarzyszyć negatywne emocje, takie jak: lęk, strach, złość czy

agresja. Natomiast skutkiem jego działania mogą być zmiany fizjologiczne i biochemiczne w organizmie człowieka.

Cel pracy. Celem pracy była ocena natężenia stresu odczuwanego przez personel pielęgniarski pracujący w oddziałach Intensywnej Terapii oraz wpływ na podejmowane zachowania zdrowotne.

Materiał i metody. Badaniem objęto grupę 100 pielęgniarek pracujących na oddziałach Anestezjologii i Intensywnej Terapii Szpitala Uniwersyteckiego w Krakowie. Badanie przeprowadzono przy użyciu kwestionariusza ankiety własnej konstrukcji oraz Inwentarza Zachowań Zdrowotnych (IZZ) i Skali Odczuwanego Stresu PSS-10. Analizę statystyczną wykonano w programie Stat Soft. W przeprowadzonych analizach za poziom istotności przyjęto wartość  $p < 0,05$ .

Wyniki. Uzyskane wyniki wykazały iż 86% przebadanych pielęgniarek odczuwa stres podczas pracy. Zaobserwowano obecność istotnych statystycznie korelacji między poziomem odczuwanego przez badanych stresu a ogólnym poziomem zachowań zdrowotnych ( $p = 0,002$ ;  $r = -0,30$ ). Im wyższy poziom stresu odczuwają pielęgniarki, tym w mniejszym stopniu zwracają uwagę na podejmowane zachowania zdrowotne.

Wnioski. Pielęgniarki pracujące na oddziałach Intensywnej Terapii są narażone na oddziaływanie wielu stresogennych bodźców (nagła czy trudna intubacja, reanimacja). Pielęgniarki w wyniku oddziaływania stresu nie przestrzegają prawidłowych zachowań zdrowotnych, co może powodować uszkodzenia na ich zdrowiu. Badane osoby głównie przestrzegają zachowania zdrowotne w zakresie prawidłowych nawyków żywieniowych oraz pozytywnego nastawienia psychicznego. Natomiast w niskim stopniu dbają o prawidłowe zachowania profilaktyczne.

**Słowa kluczowe** - stres, czynniki stresogenne, pielęgniarki, oddział Intensywnej Terapii, zachowania zdrowotne.

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- A. The idea and the planning of the study
- B. Gathering and listing data
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## I. INTRODUCTION

**S**tress is defined as a condition of increased nervous tension, which is characterized by a sequence of negative emotions. This situation leads to reactions determined by physiological and biochemical factors. Human organism may react to stress in a variety of ways. Firstly, the organism is agitated, which, consequently, leads to a series of reactions [1]. Stress at work has a negative impact on employees' somatic health, which results in absence from work. Every fourth employee working in the European Union believes that stress has a negative impact on their health. About €20 million is spent annually in Europe on treating stress-related problems, which is a significant strain on every country's budget [2]. In the nursing profession exposure to stressors stems from the responsibility for the service provided and patient's life and health as well as from the perception of the profession itself and salary [3-9].

In the case of nurses working in anaesthesiology and intensive care units, stress results from lack of time, which makes them perform their duties in a hurry. Moreover, contact with patient's families increases stress and tension and hinders proper cardiopulmonary resuscitation procedures [10,11,12].

Nurses working in anaesthesiology and intensive care units are frequently exposed to patients' suffering and many times happen to keep them company while they are dying. Such experience has an unquestionable impact on nurses' psyche and may give rise to negative emotions affecting, consequently, their inner experience [11,12,13]. Therefore,

nurses should pay more attention to everyday life, which should be understood as undertaking specific health behaviour actions. What plays an important role in everyday life is health behaviour including proper eating habits such as regularity of meals and nutritional value of food products. Similarly, it is vital to pay attention to proper physical activity and, not only personal, but also environment and workplace hygiene. On the other hand, wrong health behaviours have a negative impact on our organism and may lead to various diseases connected with circulatory, respiratory, digestive or nervous systems. Thus, it is essential to follow aforementioned health routines because doing so it is possible to prevent some diseases or, at least, to alleviate their course.

The objective of the study was to assess the intensity of stress experienced by nursing staff working in intensive care units and to examine its influence on nurses' health behaviours.

## II. MATERIALS AND METHODS

The study was carried out in anaesthesiology and intensive care units of the University Hospital in Cracow. The total of 100 nurses took part in the study including 85 female and 15 male ones. The average age of respondents was 34.49 (SD=8.08; ranging from 22 to 52). The majority of respondents graduated from university with BA (47%) or MA (46%) degree. As many as 73 respondents completed a course in anaesthesiology and intensive care. However, only 22 people had a specialization in this area. As far as the period of employment was concerned the majority of respondents had very little experience as 49% of them had worked in anaesthesiology and intensive care units for no longer than 5 years. In 21 cases the period of employment ranged between 6 and 10 years and 23 respondents reported the period of employment ranging from 11 to 20 years.

The study was carried out with the application of a diagnostic poll method including a questionnaire technique. The study applied standardized tools. One of them was Health-Related Behaviour Inventory developed by Z. Juczyński, which verifies the range of health behaviours on 1 – 5 scale. The inventory deals with the following areas: healthy eating habits, preventive measures, positive mental attitude, health practices [14].

Perceived Stress Scale (PSS-10) developed by S. Cohen and adapted by Z. Juczyński and N. Ogińska-Bulik is another tool used in the study. The scale is designed to assess the intensity of stress by means of 0 – 4 scale and 10 ques-

tions about subjective feelings, problems and personal experience [15].

### III. RESULTS

Experiencing stress at work was declared by 86% of respondents. Respondents' reactions to stress were varied. A dominant group (58.1%) consisted of people for whom stress was a motivating factor. Just the opposite opinion was held by 18 respondents who claimed that stress prevented them from taking any action.

On average, one in three respondents did not declare that stress at work had an influence on their private life. The others (66.3%) pointed at a significant correlation between perceived stress at work and their personal life.

Among the factors which had an influence on experiencing stress at work the dominant ones were emergencies such as a complicated intubation (42 people; 48.8%) or resuscitation (40 people; 46.5%).

The results obtained from PSS-10 scale were converted from raw scores into sten scores. General score was compared with the values defined for 3 categories. The sten score ranging from 1 to 4 defines a low level, from 5 to 6 - an average level and between 7 and 10 – a high level [15]. A general average score of the examined group was 18.45 (SD=5.42). An interpretation of obtained results allowed for isolating the dominant intensity of stress on the average level in 45% of respondents (Table 1).

Table 1. Categories intensity of stress on PSS 10 scale

Categories on PSS 10 scale	N(%)
Low level (1-4)	14 (14%)
Average level (5-6)	45 (45%)
High level (7-10)	41 (41%)

An analysis of health behaviours based on Health-Related Behaviour Inventory made it possible to identify a dominant component (healthy eating habits; M=3.31) and the component with the lowest intensity (health practices; M=2.96). The average score of Health-Related Behaviour Inventory in the examined group reached 76.57. Half of the respondents scored approximately 75 points on Health-Related Behaviour Inventory scale, whereas one in four respondents scored less than 40. The maximum score on

Health-Related Behaviour Inventory scale is 120, which, in comparison with the results obtained from the examined group, indicates an average implication (63.8%) (Table 2).

Table 2. Categories of health behaviours on Health-Related Behaviour Inventory scale

Categories of health behaviours on Health-Related Behaviour Inventory scale	AM	SD	Min.	Max.
Health behaviour rate	76,57	14,70	40,00	107,00
Healthy eating habits	3,33	0,76	1,00	5,00
Preventive measures	3,20	0,80	1,50	5,00
Positive mental attitude	3,27	0,70	1,83	4,67
Health practices	2,96	0,64	1,50	4,50

AM.- arithmetic mean; SD.-standard deviation; Min.-minimum value; Max-maximum value

An interpretation of results presented on sten scale led to identifying 53 respondents whose health behaviours fluctuated on a low level and only 15 respondents whose score classified them on a high level (Table 3).

Table 3. Categories of health behaviours on Health-Related Behaviour Inventory scale

Score on Health Related Behaviour Inventory scale	Low level (1-4 sten)	Average level (5-6 sten)	High level (7-10 sten)
	N(%)	N (%)	N (%)
Health behaviour rate	53 (53%)	32 (32%)	15 (15%)

A statistically significant correlation was found between the intensity of perceived stress and health behaviour rate ( $p=0.002$ ). Moreover, a correlation was observed between stress intensity and undertaken health practices ( $p=0.044$ ) and positive mental attitude ( $p=0.000$ ). Also a negative correlation was observed between higher stress intensity and lower level of health behaviours within Health-Related Behaviour Inventory, positive mental attitude and health practices scales (Table 4).

Table 4. Relation between stress intensity on PSS 10 scale and the scores of health behaviours on Health-Related Behaviour Inventory scale

Variable	p-value	
	r	p
Stress intensity & Health behaviour rate	- 0,30	0,002
Stress intensity & Healthy eating habits	- 0,17	0,094
Stress intensity & Preventive measures	- 0,20	0,050
Stress intensity & Positive mental attitude	- 0,47	0,000
Stress intensity & Health practices	- 0,20	0,044

r –Pearson correlation coefficient; \* statistically significant p-value

#### IV. DISCUSSION

Nursing profession has always been connected with stress and this tendency is going to intensify as fewer and fewer people decide to start nursing studies. Moreover, a lot of people decide to drop out of these studies, resign from receiving a licence to practise a nursing profession or go abroad after graduation. According to the data included in the report of the Main Chamber of Nurses and Midwives of Poland from May 2015 only 8.91% of nurses registered in the Central Register of Nurses and Midwives are 36 or younger. According to forecasts the number of nurses is going to drop continually in the years to come [16].

The study carried out in a group of 102 nurses working in Podlaskie region recognized the role of stress at work as a risk factor of occupational burnout. According to the findings of the study 72.6% of nurses complained of exposure to stress at work [5]. Similar results were obtained in an individual study, which indicated that about 86% of the surveyees experience stress at work.

Stress at work may have an influence on one's private life as it was observed in the study carried out by Wawros *et al.* (2014) in a group of anaesthesiology nurses working in an operating theatre. About 70% of respondents declared that the stress which they experienced had a negative impact on their personal life [17]. The authors' individual study shows the same relation that stress at work affects negatively nurses' personal life (66.3%).

According to the research carried out by Eliza Pawełczak and Tomasz Gaszyński into stress-inducing situations in the case of doctors and anaesthesiology nurses, it was proved that the most stressful situations are, above all, difficult

intubations reported by 59% of respondents. Next bad organization of work was reported, which frequently led to misunderstandings in the medical team (40% of respondents). Other stressful situations included: resuscitation (38%), responsibility for one's actions (37%), overwork (35%). On the other hand, according to the nurses the least stress-inducing component was assisting in emergency surgeries (16%). Moreover, it can be concluded that for 53% of respondents experiencing stress at work turns out to be motivating for further actions. The nurses also pointed out that the longer period of employment, the lower their stress perception becomes (52% of respondents) [18].

The results of authors' individual studies partially coincide with aforementioned results. On the first position appeared sudden intubation (11.1%), then resuscitation (10.6%), too many duties (10.3%), interdependence between patients' families and medical staff (9.3%) and understaffing (9%). In the individual study surveyees also declared that stress experienced at work mobilizes them to further actions.

Following the studies carried out among nurses working in Małopolska it can be concluded that the most stress-inducing factors include: time pressure, understaffing during shifts, responsibility for patients' health and life, patient's death and accompanying helplessness, contact with patients' families and especially lack of respect from patients' families towards nursing staff [19].

In the study carried out by Ślusarska *et al.* (2014) in a group of paramedics the observed intensity of stress was on an average level [20]. Whereas, in the individual study carried out in a group of nurses the stress intensity was classified as average (45%) or high (41%).

Apart from that, the study conducted by Książek *et al.* (2015) in a group of surgical nurses and concentrating mainly on lifestyle issues proved that health behaviours in nurses could be classified on average or low level and that nurses in the first place took care of proper eating habits [21]. Similar results were obtained in individual research, in which surveyees experiencing higher intensity of stress obtained also lower general scores within proper health behaviours (75.6%).

On the other hand, in the study carried out by Walentukiewicz *et al.* (2013) in a group of first year nursing students, it could be observed that the highest-rated component of health behaviours turned out to be positive mental attitude (3.10 sten scores) and healthy eating habits were classified only on the next position (3.09 sten scores) [22].

Taking this information into account it can be observed that nurses' health behaviours change along with the transi-

tion from a student to employee status. This period is accompanied by a change in the scope of duties and responsibilities for one's actions. Nursing profession is, undoubtedly, a very stressful one, which is caused by a number of factors ranging from operating complicated medical equipment to contacts with patients and other medical staff. The individual study proved that stress is a factor which determines nurses' health behaviours and their lifestyle. At the same time it should be emphasized that apart from exposure to stress and stress-related complications nurses are also at risk because they do not follow appropriate health behaviour routines which may result in deterioration of their health in the future.

## V. CONCLUSIONS

- About half of the nursing staff working in intensive care units experience stress of average intensity.
- The factors which increase subjective stress perception in nursing staff working in intensive care units include: sudden and difficult intubation performed on the patient, resuscitation, overwork and patients' families' attitude towards the staff.
- The respondents tend to follow health behaviour routines as far as healthy eating habits and positive mental attitude are concerned. On the other hand, they care very little about preventive measures.

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